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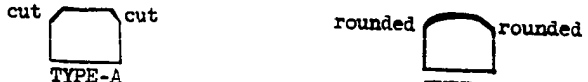
SOURCE

/The information which follows pertains to the Kiev-Fastov railroad division of the South West Railroad system. The distance between the two points is 65 km./

Ties

1. Wooden ties were used exclusively on the Kiev-Fastov line. About 40% were oak and 60% pine. Both were thoroughly creosoted. They were not pre-bored nor pre-adzed. The average life of the oak tie was about nine years; the pine, eight. The average life was about the same for all lines because the ties were destroyed mainly by the effects of weather and rot rather than by mechanical damage. Tie replacement on main lines averaged about 200 per kilometer, annually. On secondary lines it dropped to 180 and on sidings between 170 and 180. There were 1600 ties per kilometer on the main lines, 1440 per kilometer on the secondary lines and 1320 to 1440 per kilometer on sidings.

2. There were two types of ties used on the Kiev-Fastov line;



TYPE-A TYPE-B

Both types were used interchangeably. The two types were divided by thickness into five classes of A-1 to A-5 and B-1 to B-5. (Exact wts not known)

Class A-1 and B-1 (heaviest type, used on main lines only)
A-2 and B-2 (medium weight, used on main lines only)
A-3 and B-3 (lightest weight, used on main lines only)

Class A-4 and B-4 (used only on secondary lines and sidings)
A-5 and B-5 (used only on secondary lines and sidings)

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Classes 1,2 and 3 of the A and B types were 2.7 meters long. Classes 4 and 5 of the A and B type were 2.5 meters long.

Rails

3. Three types of rails were used on the line as follows:

type	kg/m	height	width of base	width of head
1-A	42.98	140 mm	125 mm	70 mm
2-A	38.28	135 mm	114 mm	68 mm
3-A	32.69	127 mm	110 mm	60 mm

Types 1-A and 2-A were used on the main lines for both single and double track. Type 3-A was used on secondary lines and sidings. There was an obsolete type known as 4-A (not manufactured since 1917) that was very light and could be found on a few sidings. All types of rails were divided into two sizes; those 12.8 meters long and those 10.67 meters long. The life of a rail averaged between 30 and 40 years on the main and secondary lines. Rails removed from main and secondary lines were usually used on sidings, if at all serviceable. Re-rolled rails were not used. Replacements on double-track main lines usually were between six and eight rails annually; on secondary, single-track lines between two and four rails annually. Rails on sidings were very seldom replaced.

Fuel and Electric Power

4. The most common type of locomotive used on the Kiev-Fastov run was the "ShCh", which, with tender, weighed between 65 and 75 mts. The average load hauled on this run (loaded freight train without locomotive and tender) was about 1500 metric tons. The trip took (one way) about two hours at the technical speed of 30 km per hour. Coal consumed for a one way trip averaged between four and five tons. To make the same trip, an "M" type (passenger) locomotive with tender (60 to 70 mt) plus 800 mt load, took about 80 minutes and consumed between three and four tons of coal. Loaded cars were never weighed in the Soviet. The gross weight was determined on the basis of an assumed average, per loaded and empty car. I am unable to give any averages for switching locomotives.

5. Coal locomotives only were used on the Kiev-Fastov line. The freight locomotive, type "ShCh", used between 60 and 90 kgs of coal per locomotive-kilometer. The most common passenger locomotive was the "M" type which used between 50 and 75 kgs of coal per locomotive-kilometer. In 1940 there were around 48 pairs of trains a day on this line (by pairs I mean 48 trains from Kiev to Fastov and 48 from Fastov to Kiev, a total of 96 in both directions. A locomotive leaving Kiev would pull one train to Fastov and then return to Kiev with another train). Of this total, about 30% were passenger trains. The station at Kiev (which included the stations Kiev I, Kiev II, Darnitsa and other sub-stations in Kiev) required about 2000 to 2250 mts of coal daily. About 75% of this coal was consumed by locomotives (figuring about 100 locomotives daily leaving Kiev in all directions). The remaining 25% was used for repair facilities, stations, etc. I am unable to furnish consumption figures per unit repaired.

MANPOWER

6. The Kiev-Fastov line as such had a total of about 1000 workers of all types. Kiev was a major railroad center and the main administration offices of the South-West Railroad system were located there. Including

all sub-stations, the following number of workers were employed:

Department	Average number of workers
Track Service (line maintenance, repair teams, etc.)	1000
Rolling stock repair facilities	3000
Transport service (locomotive engineers and crews)	2000
Traffic service (switchers, conductors, brakemen, etc)	5000
Commercial service (loaders, etc)	1000
Communications (telegraph, telephone etc)	500
Administration service	1000
Railroad technical schools (900 to 1200)	1000
Main Administration of SWRR System	5000
	19,500

(1000 workers directly connected with the Kiev-Fastov Division included).

A passenger train on a short run had

1-chief conductor
3 or 4-assistant conductors
1-locomotive engineer
1-assistant engineer
1-stoker
7 or 8 average

(A long distance passenger train also had one porter assigned to each car - usually 12. These porters were assigned for the complete trip and were not replaced at intermediate stations)

A freight train crew was made up as follows:

1-engineer
1-assistant engineer
1-stoker
2-conductors
4-brakemen
1-oiler
10

7. The average capital repair job of a locomotive required up to 25,000 man hours. A medium repair job (annual) required up to 5000 man hours. Capital repair of a car (passenger or freight) required up to 10,000 man hours. The washing of a locomotive boiler took about 48 man hours. The average work week was between 42 and 48 hours per week.

Rolling Stock

8. The average life of a locomotive was estimated at 40 to 50 years, freight cars 10 to 15 years and passenger cars from 20 to 25 years. A capital repair job was made every five years on locomotives and every four years on cars (freight and passenger). Medium or annual repairs were made on locomotives and cars every year. Minor repair (overall inspections) to locomotives were made every month. The following lenth of time was consumed as an average for locomotive and car repairs:

	Capital repair	Annual repair	Current repairs
Locomotives	1 to 2 months	10 to 15 days	1 to 3 days
Cars	1 month	5 to 10 days	1 to 3 days

I am unable to furnish any figures on the consumption of materials used for various repairs.

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